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ABSTRACT

A detailed description is provided of the variable, constructivism versus behaviorism (CVSB), which is part of the analysis in phase I of the Evaluation of Practices in Individualized Schooling. The variable is defined: the questionnaires on which the variable is based are listed: the procedures used to scale the variable are explained: the distribution of the variable in the 156 individually guided education (IGE) schools which participated in phase I is described; and the internal consistency of the variable is reported. (Author/MH)

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PROCEDURES USED IN PHASE I OF THE IGE EVALUATION
TO SCALE THE VARIABLE VIEW OF LEARNING:
CONSTRUCTIVISM VS. BEHAVIORISM

by Gary G. Price, Terence C. Janicki, Judith A. Howard,
Deborah M. Stewart, Anne E. Buchanan, and Thomas A. Romberg

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- providing assistance to educators which helps transfer the outcomes of research and development to improved practice in local schools and teacher education institutions

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Abstract

This report provides a specific discussion of a variable that is part of the analysis in Phase I of the Evaluation of Practices in Individualized Schooling. The name of the variable is Constructivism vs. Behaviorism. Included in this discussion is a verbal definition of the variable, a list of the questionnaire items on which the variable is based, a technical explanation of the procedures used to scale the variable, a description of the distribution of the variable in the 156 schools that participated in the Phase I study, and the internal consistency of the variable. Most readers would find it useful to read Technical Report No. 475, Overview of School and Unit Variables and their Structural Relations in Phase I of the IGE Evaluation, before beginning this one.

This Technical Report provides a detailed description of the variable, Constructivism vs. Behaviorism. The description includes a verbal definition of the variable, a list of the questionnaire items on which the variable was based, and a technical explanation of the procedures used to scale the variable. The report also contains a description of the distribution and the internal consistency of the variable. This variable, among others, is part of the analysis in Phase I of the Evaluation of Practices in Individualized Schooling. Phase I, which is a study of 156 Individually Guided Education (IGE) schools, is the large sample part of the overall evaluation effort. Further explanation of the Phase I study and an explanation of the relationship of this variable to the Phase I analysis is given in Technical Report No. 475, Overview of School and Unit Variables and their Structural Relations in Phase I of the IGE Evaluation.

Verbal Definition of the Variable

Constructivism versus behaviorism. The constructivism vs. behaviorism variable is meant to measure a dimension of basic difference in beliefs educators have about the nature of knowledge and the processes by which knowledge is acquired. From a behaviorist perspective, knowledge is conceived as the ability to recall information or execute an action in a way that is appropriate to an externally specifiable situation. The acquisition of knowledge (conceived in that way) is regarded as the establishment of associations between situations and the responses appropriate to those situations. Knowledge is thus definable in terms of situational characteristics and observable behavior, so students are

characterized in terms of their fit to that external definition of knowledge (matching their behavior to the situation). From a constructivist perspective, there is little or no emphasis on the external specification of knowledge. Knowledge is conceived as a collection of schemes that characterize the cognitive functioning of the student. The acquisition of such knowledge is a process of active construction by the student, which is affected by the personal history, perspective, and preferences of the student.

Explanation of Variable-naming Conventions

This measure, like most of the variables used in Phase I of the IGE evaluation, is a composite of items taken from several different instruments. The names and identification numbers of the respective instruments are given in Table 1, along with other information. The instruments numbered 11, 17, 51, 52, and 53 were given to all staff members¹ of each school studied, and were to be filled out individually. One copy of Instruments 22, 25, and 26 was given to each of the I&R units² studied (two I&R units from each school, one that included second grade students and one that included fifth grade students). These instruments were filled out by the unit as a group, after they reached consensus. Instruments 23 and 24 were given to teachers of the I&R units studied

¹Includes all professional personnel (i.e., not aides) assigned at least one-third time to the building in both the 1976-7 and 1977-8 school years.

²Includes all professional personnel (i.e., not aides) assigned at least one-third time to the I&R unit in both the 1976-7 and 1977-8 school years and directly involved in planning instruction for the unit students in reading, math, or language arts.

Table 1
Instrument Identification

Test booklet	Instrument	Instrument number	File	Respondent
General staff questionnaire	IGE implementation survey	11	H	School staff members
	Staff background	17	H	School staff members
	Assumptions regarding conditions of schooling	51	H	School staff members
	Job satisfaction survey	52	H	School staff members
	Assumptions regarding learning and knowledge	53	H	School staff members
Unit staff questionnaire	I&R structure and function	22	A,B	Unit as a group
	Record keeping and regrouping	25	A,B	Unit as a group
	Instructional time and objectives	26	A,B	Unit as a group
	Role of staff teacher	23	F,G	All unit teachers
	Instructional practices	24	F,G	All unit teachers
IIC questionnaire	IIC structure and function	21	C	IIC as a group
	Demographic background	16	C	IIC as a group
IGE schools questionnaire	IGE schools questionnaire	13	C	Principal

and they filled them out individually. One copy of Instruments 16 and 21 was given to the IIC of each school, and was filled out by the IIC as a group. Instrument 13, a questionnaire about the entire school, was filled out by the principal of the school.

In order to keep track of information collected from different sources, it was necessary to develop some complex conventions for naming variables. Those conventions are explained here. The abbreviated name of each item and each variable contains eight or fewer characters, in order to be readable by computer. The first character of each item and variable name is a letter that indicates the case for whom the item or variable is a measure. In this discussion, variables include information from two or more questionnaire items or transformed information from one item. Items coming from a common source (i.e., the same respondents) were collected into a common data file whose name corresponds to the first letter in the names of all items collected in it. There were six such files. Those files, described in terms of the cases to which they pertain and in terms of their respective alphabetic codes, are:

- A I&R units containing 2nd grade students (the I&R unit as a case).
- B I&R units containing 5th grade students (the I&R unit as a case).
- C The entire school as a case.
- F Individual teachers of I&R units containing 2nd grade students.
- G Individual teachers of I&R units containing 5th grade students.
- H Individual staff members employed by the school.

Item names. The second character in all item names is the letter "V," which distinguishes item names from names of other vari-

ables. The third and fourth characters in item names denote the number of the instrument of which the item is a part (see Table 1). The fifth, sixth, and seventh, and in some cases, eighth characters in item names contain the identification number of the item within the instrument. For example, Item number 1 from the Staff Background Questionnaire (Instrument 17), which was given to all members of the school staff, is named as follows:

HV17001

- Item number
- Instrument number
- Identifies this as an item
- File H (includes responses of individual staff members)

Variable names. Variable names, like item names, begin with an alphabetic code that indicates the cases to which they pertain. Following that first character is an abbreviation of two to four characters used by the evaluation staff to denote the major composite of which the variable is a constituent. Subsequent characters identify the position of the variable in the scaling operation. For example, one of the constituents of the Intraorganizational Structure composite (IOS) is named as follows:

CIOSAO2

- Second indicator of Part A (whether principal is full time)
- Part A of IOS (personnel allocation and composition of I&R units)
- Composite name (Intraorganizational Structure)
- File C (includes measures of the school as a whole)

Some of the composites are measures of the school as a whole, whereas others are specific to both the I&R unit (2nd or 5th grade) and the subject area (math or reading). Composites that pertain to the school as a whole are: Interorganizational Relations (IOR), Procedures Fostering Coordination and Improvement of the School Program (GOSB),

General Staff Background (GSB), Intraorganizational Structure (IOS), Belief in Individual Differences (INDIV), View of Learning: Constructivism vs. Behaviorism (CVSB), the School's Demographic Setting (DB), General Implementation of the Instructional Programming Model (GOSA), and Teacher Job Satisfaction (JOBSAT).

Composites that are specific to I&R unit and subject area are: Utilization of Curriculum Resources (UCR), Information Acquisition (IA), Individualization of Instructional Decisions (IDM), Management of Grouping and of Instructional Continuity (IE), Allocated Learning Time (ALT), and measures of student achievement. In the technical explanations of scaling, composites specific to the 2nd grade I&R unit begin with the letter "A"; composites specific to the 5th grade I&R unit begin with the letter "B." For brevity, a lower case "z" is used as the first letter wherever the explanation of scaling applies to both the 2nd and 5th grade I&R units.

Scaling Procedure

HCVSB is the teacher's mean of 27 items that are related to the dimension of view of learning, with items scaled so that the higher end of the dimension is constructivism and the lower end is behaviorism. These items come from the Assumptions about Conditions of Effective Schooling Questionnaire and the Assumptions about Learning and Knowledge Questionnaire. The items are included in Appendix A, and the SPSS commands creating the variable are included in Appendix B. ACB2 is the mean of the studied second-grade teachers on HCVSB; and BCB5 is the mean of the studied fifth-grade teachers on HCVSB.

Distribution and Internal Consistencies of the Scaled Composites

Summary statistics for ACB2 in the Phase I sample of 156 schools are: mean = 2.996; SD = .178; median = 2.975; actual minimum = 2.425; logical minimum = 0; actual maximum = 3.545; and logical maximum = 4. A histogram for ACB2 is included in Figure 1. Summary statistics for BCB5 in the Phase I sample of 156 schools are: mean = 2.955; SD = .196; median = 2.959; actual minimum = 2.325; logical minimum = 1; actual maximum = 3.451; and logical maximum = 4. A histogram for BCB5 is included in Figure 2. The internal consistencies (Cronbach's α) are included in Table 2.

The relation of internal consistency to reliability in general and to validity can be difficult to understand. A composite whose constituents have high internal consistency may or may not possess high test-retest reliability. Conversely, a composite that has high test-retest reliability may have low internal consistency. Any composite that measures a homogeneous construct should rightfully be expected to have high internal consistency, but a composite that measures a construct which combines several facets which are empirically unrelated should not necessarily have high internal consistency, as noted by Cronbach and Meehl (1955)³. Several of the composites used in Phase I fit the latter description, and, accordingly, should not be expected to have high internal consistency.

³ Cronbach, L. J., & Meehl, P. E. Construct validity in psychological tests. Psychological Bulletin, 1955, 52, 281-302.

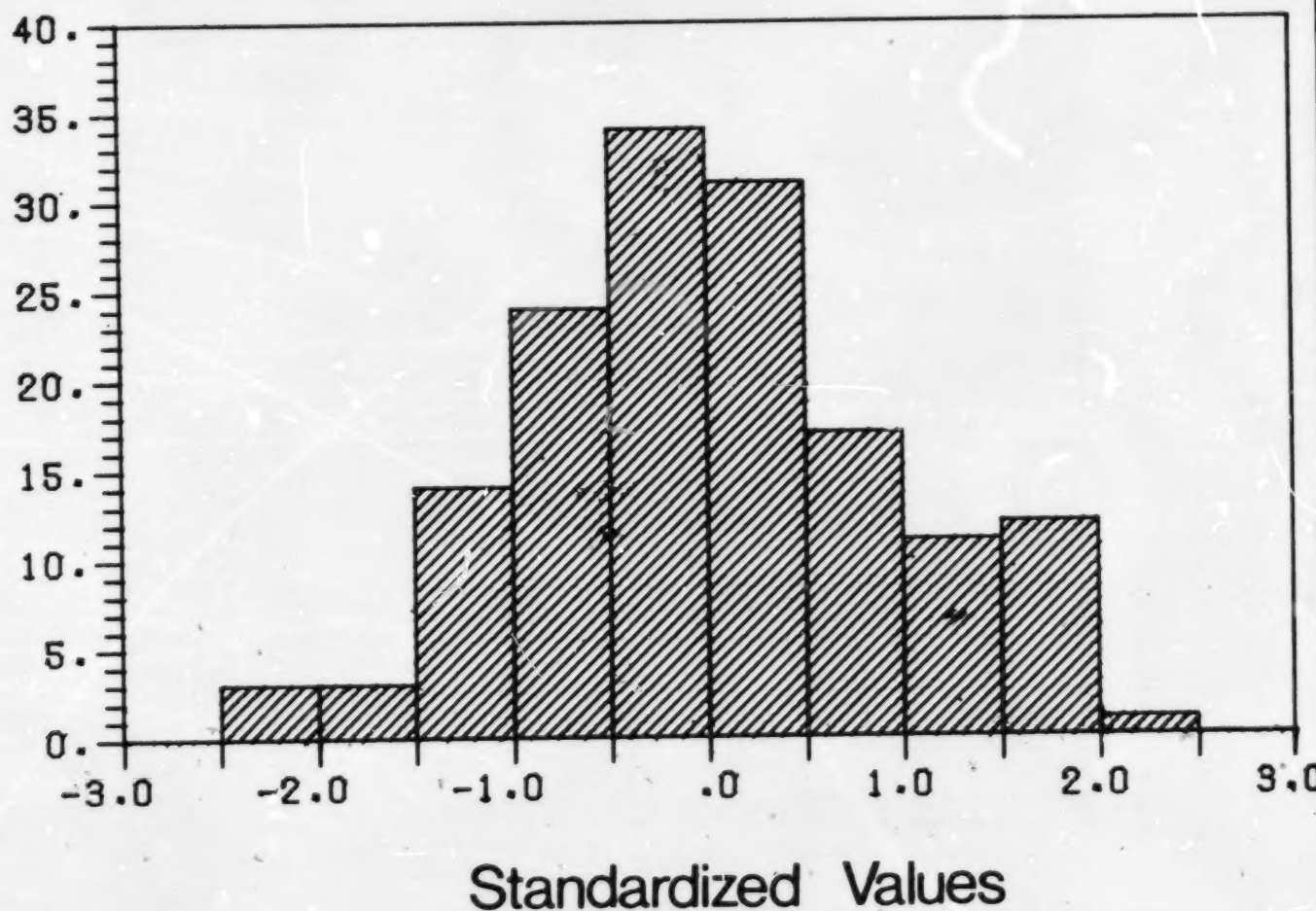


Figure 1. View of Learning: Constructivism vs. Behaviorism (second grade teachers).

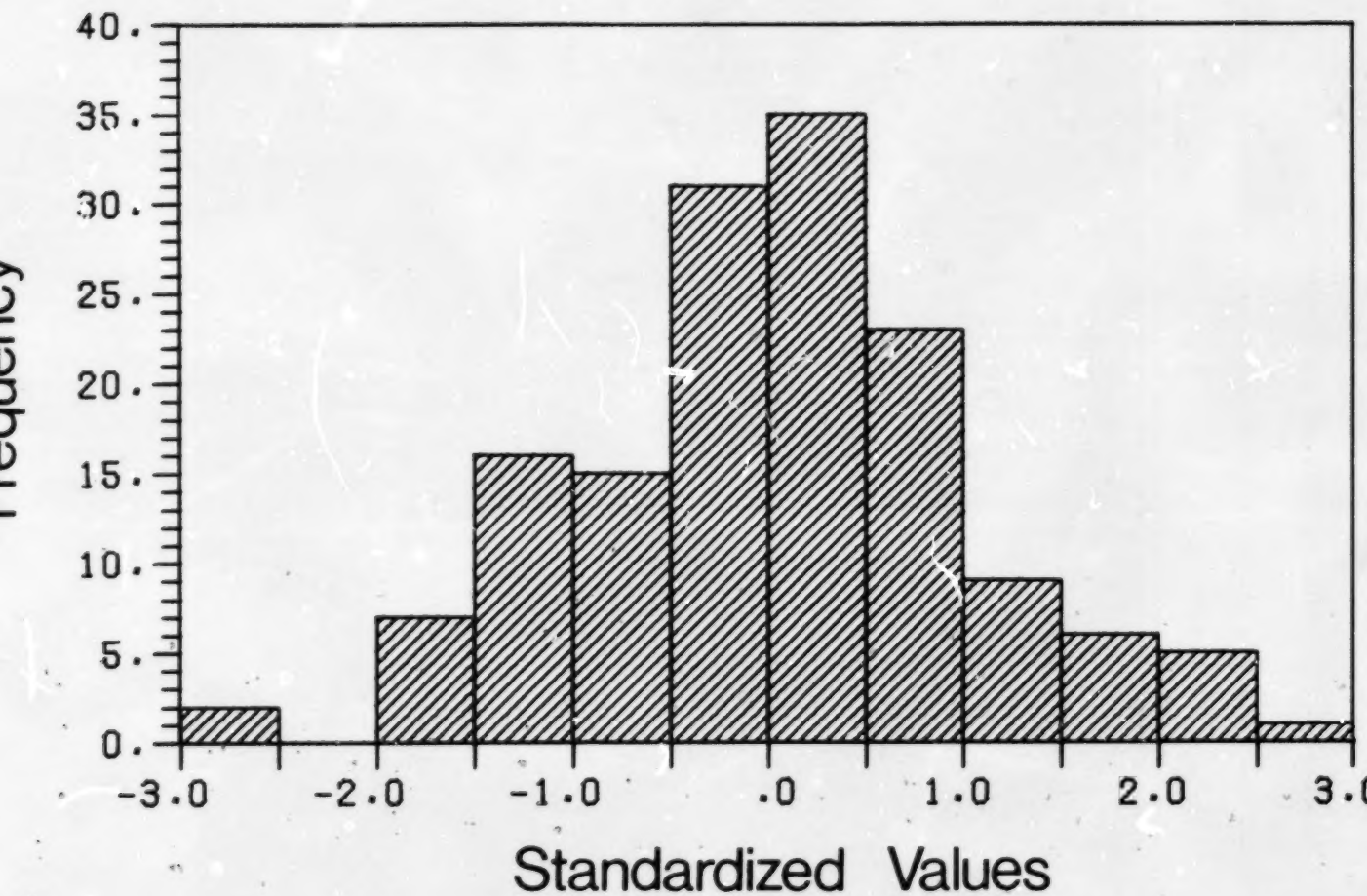


Figure 2. View of Learning: Constructivism vs. Behaviorism (fifth grade teachers).

Table 2
Internal Consistency for the Scaled Composites

Variable		α
Composites:	ACB2	.88
	BCB5	.88

Appendix A: Item Pool

Assumptions about Conditions
of Effective Schooling

Directions: Below is a list of conditions which are said to be necessary for effective schooling. Please indicate *your* feelings about the *necessity* of each condition. Use the following code and rows 51-78 of answer sheet B.

- (0) = Strongly disagree
- (1) = Disagree
- (2) = No strong feeling
- (3) = Agree
- (4) = Strongly agree

Staff Roles

- CB 61 Provisions are made for differences in students' rate of learning, style of learning and other characteristics.
- CB 65 Specific instructional objectives are set for each student to attain over a short period of time.
- CB 66 The amount of teacher direction and student interaction in instructional activities is varied to meet individual student needs.
- CB 67 The use of materials, equipment, resources, and direct experience is varied to meet individual student needs.
- CB 68 The amount of time spent in different types and sizes of learning groups is varied to meet individual student needs.
- CB 71 The physical space configuration of the school building encourages varied types of grouping and learning activities.
- CB 72 A variety of quality printed materials, audio visual resources, and other supplementary materials is used regularly.
- CB 74 The staff regularly shares creative ideas, materials, and instructional approaches with staffs of other schools.

Assumptions about Learning
and Knowledge

Directions: According to the code below, indicate on answer sheet B, rows 81-108 the phrase which best represents *your* own feelings about each statement.

- (0) = Strongly disagree
- (1) = Disagree
- (2) = No strong feeling
- (3) = Agree
- (4) = Strongly agree

ASSUMPTIONS ABOUT CHILDREN'S LEARNING

Motivation

- CB 81 Children are innately curious and will explore their environment without adult intervention.
- CB 82 Exploratory behavior is self-perpetuating.

Conditions for Learning

- CB 85 Active exploration in a rich environment, offering a wide array of manipulative materials, will facilitate children's learning.
- CB 86 Play is not distinguished from work as the predominant mode of learning in early childhood.
- CB 87 Children have both the competence and the right to make significant decisions concerning their own learning.
- CB 88 Children will be likely to learn if they are given considerable choice in the selection of the materials they wish to work with and in the choice of questions they wish to pursue with respect to those materials.
- CB 89 Given the opportunity, children will choose to engage in activities which will be of high interest to them.

Social Learning

- CB 90 When two or more children are interested in exploring the same problem or the same materials, they will often choose to collaborate in some way.

Assumptions about Learning
and Knowledge

(continued)

- CB 91 When a child learns something which is important to him. he will wish to share it with others.
- CB 93 Children learn and develop intellectually not only at their own rate but in their own style.
- CB 94 Children pass through similar stages of intellectual development, each in his own way and at his own rate and in his own time.

Evaluation

- CB 97 The preferred source of verification for a child's solution to a problem comes through the materials he is working with.
- CB 98 Errors are necessarily a part of the learning process; they are to be expected and even desired, for they contain information essential for further learning.
- CB 99 Those qualities of a person's learning which can be carefully measured are not necessarily the most important.
- CB 100 Objective measures of performance may have a negative effect upon learning.
- CB 101 Learning takes place when a child is fully involved in an activity and is best assessed intuitively, by direct observation.
- CB 105 Knowledge is a function of one's personal integration of experience and therefore does not fall into neatly separate categories or "disciplines."
- CB 106 The structure of knowledge is personal and idiosyncratic; it is a function of the synthesis of each individual's experience with the world.
- CB 108 It is possible, even likely, that an individual may learn and possess knowledge of a phenomenon and yet be unable to display it publicly. Knowledge resides with the knower, not in its public expression.

Thank you very much for your cooperation in completing these questionnaires.

Appendix B: SPSS Commands

Operations to do in HGENERAL

COMPUTE HCVSB = (HV51061 + (4-HV51065) + HV51066 + HV51067 + HV51068
 HV51071 + HV51072 + HV51074 + HV53081 + HV53082 +
 HV53085 + HV53086 + HV53087 + HV53088 + HV53089 +
 HV53090 + HV53091 + HV53093 + HV53094 + HV53097 +
 HV53098 + HV53099 + HV53100 + HV53101 + HV53105 +
 HV53106 + HV53108)/27

VAR LABELS HCVSB, CONSTRUCTIVISM VS. BEHAVIORISM: 27 ITEMS

VALUE LABELS HCVSB (0)HIGH BEHAVIORISM (4)HIGH CONSTRUCTIVISM

Operations to do in CSCHOOL

ADD VARIABLES ACB2, BCB5

COMMENT ACB2, THE MEAN OF 2nd 6Gr Tchr's on HCVSB
 BCB5, THE MEAN OF 5th 6Gr Tchr's on HCVSB

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